



January 20, 2006

Mr. J. Robert Brown  
Engineering Services Division  
Bureau of Air Quality  
2600 Bull Street  
Columbia, South Carolina 29201

Re: Bowater Coated and Specialty Papers Division  
PSD/NSR Permit Application for Kraft Fiberline Optimization  
Additional Information Request  
Permit No. 2440-0005

Dear Mr. Brown:

Bowater Coated and Specialty Papers Division (Bowater) has prepared the following additional information following the January 12 meeting.

DHEC request No. 1

Provide future woodyard capacity following installation of new truck dumper.

Bowater response No. 1

The current woodyard capacity is listed in the Title V application as 393 tons/hr, and the corresponding particulate emissions are 24.0 lb/hr. The new chip truck dumper capacity is 200 tons/hr, with a corresponding particulate emission rate of 0.40 lb/hr. Therefore, the new maximum woodyard throughput will be 593 tons/hr and corresponding particulate emissions of 24.4 lb/hr. The new chip truck dumper emission calculations are presented in Attachment 1.

The actual increased throughput for the woodyard is expected to be approximately 75 tons/hr, based on the projected increase in kraft mill production after accounting for yield, moisture, fiber losses, etc.

DHEC request No. 2

Emissions increases from coated paper/market pulp production should be calculated on an actual-to-potential basis rather than an actual-to-projected actual basis.

Bowater response No. 2

The additional kraft pulp will be used for both market pulp and coated paper production. The kraft pulp used for market pulp will result in a production increase. The emissions from the pulp dryer have been calculated on an actual-to-potential basis, and are presented in Attachment 2. A revised NSR applicability table is presented in Attachment 3.

The kraft pulp content of the coated paper will be increased by twenty percent over current levels, displacing lower brightness thermo-mechanical pulp, and allowing the manufacture of

Mr. J. Robert Brown  
January 20, 2006  
Page 2

higher brightness value-added paper grades. Increasing the kraft content of the coated paper twenty percent is not anticipated to significantly change coated paper production.

DHEC request No. 3

Provide a steam balance for the project.

Bowater response No. 3

The steam balance for the project is presented in Attachment 4. The project is expected to result in a marginal decrease in mill-wide steam demand.

If you have additional questions regarding this submittal please contact Jacquelyn Taylor of Bowater at (864) 981-8759, or me at (864) 527-4734.

Sincerely,

Steven R. Moore  
URS Corporation

cc: Jacquelyn Taylor – Bowater

**Attachment 1**  
**Chip Truck Dumper Emissions**

## **1.0 New Woodyard Chip Truck Dumper**

Capacity of new chip truck dumper = 200 tons/hr

### **1.1 Particulate Matter (PM/PM<sub>10</sub>) Emissions**

Emission factor from Florida Pulp and Paper Association (1994) = 0.5 lb/ton chips

Percent fines in purchased chips = 0.2% (FP&P 1994)

Process variability factor = 2 (FP&P 1994)

#### Potential emissions:

$200 \text{ tons chips/hr} \times 0.5 \text{ lb/ton chips} \times 0.002 \times 2 = 0.40 \text{ lb/hr}$

$0.40 \text{ lb/hr} \times 8,760 \text{ hr/yr} \times 1 \text{ ton}/2,000 \text{ lb} = 1.8 \text{ tons/yr}$

**Attachment 2**  
**Pulp Dryer Emissions**

## **2.0 Pulp Dryer**

Baseline actual production = 582.9 ADTFP/day

Title V potential production = 811.8 ADTFP/day

### **2.1 Particulate Matter (PM/PM<sub>10</sub>) Emissions**

Emission factor from NCASI TB 884 = 0.0058 pounds/ADTFP

#### Baseline actual emissions:

$582.9 \text{ ADTFP/day} \times 0.0058 \text{ lb/ADTFP} \times 1 \text{ day/24 hr} = 0.14 \text{ lb/hr}$

$0.14 \text{ lb/hr} \times 8,760 \text{ hr/yr} \times 1 \text{ ton/2,000 lb} = 0.6 \text{ tons/yr}$

#### Potential emissions:

$811.8 \text{ ADTFP/day} \times 0.0058 \text{ lb/ADTFP} \times 1 \text{ day/24 hr} = 0.20 \text{ lb/hr}$

$0.20 \text{ lb/hr} \times 8,760 \text{ hr/yr} \times 1 \text{ ton/2,000 lb} = 0.9 \text{ tons/yr}$

### **2.2 Volatile Organic Compound (VOC) Emissions (25/25A as Carbon)**

VOC emission factor from NCASI TB 701 = 0.104 pounds/ADTFP

#### Baseline actual emissions:

$582.9 \text{ ADTFP/day} \times 0.104 \text{ lb/ADTFP} \times 1 \text{ day/24 hr} = 2.53 \text{ lb/hr}$

$2.53 \text{ lb/hr} \times 8,760 \text{ hr/yr} \times 1 \text{ ton/2,000 lb} = 11.1 \text{ tons/yr}$

#### Potential emissions:

$811.8 \text{ ADTFP/day} \times 0.104 \text{ lb/ADTFP} \times 1 \text{ day/24 hr} = 3.52 \text{ lb/hr}$

$3.52 \text{ lb/hr} \times 8,760 \text{ hr/yr} \times 1 \text{ ton/2,000 lb} = 15.4 \text{ tons/yr}$

### **2.3 Total Reduced Sulfur (TRS) Emissions (as H<sub>2</sub>S)**

NCASI TB 701 emission factor (methyl mercaptan - CH<sub>4</sub>S) = 0.0099 lb/ADTFP

#### Baseline actual emissions:

$$582.9 \text{ ADTFP/day} \times 0.0099 \text{ lb/ADTFP} \times 1 \text{ day/24 hr} \times 34/48 = 0.17 \text{ lb/hr}$$

$$0.17 \text{ lb/hr} \times 8,760 \text{ hr/yr} \times 1 \text{ ton/2,000 lb} = 0.7 \text{ tons/yr}$$

#### Potential emissions:

$$811.8 \text{ ADTFP/day} \times 0.0099 \text{ lb/ADTFP} \times 1 \text{ day/24 hr} \times 34/48 = 0.24 \text{ lb/hr}$$

$$0.24 \text{ lb/hr} \times 8,760 \text{ hr/yr} \times 1 \text{ ton/2,000 lb} = 1.1 \text{ tons/yr}$$

**Attachment 3**  
**Revised Table 4.1**



**Table 4.1**  
**New Source Review Applicability**

Emission Unit	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	TRS
<b>Baseline Actual Emissions (tpy)</b>						
Kraft Mill Digester Chip Bin	0	-79.7	0	0	-4.8	0
Kraft Mill Digester and Blow Tank	0	-32.4	0	0	-1.9	0
Kraft Mill Turpentine Recovery System	0	-0.79	0	0	-0.0019	0
Kraft Mill Pressure Diffusion Washer	0	-19.3	0	0	-0.70	0
Kraft Mill Knotting and Screening System	0	-23.2	0	0	-0.88	0
Kraft Mill Oxygen Delignification System	0	-3.1	0	-11.8	-1.1	0
Kraft Mill Bleaching System	0	0	0	-213.3	-11.8	-0.74
Evaporator Set No. 1	0	-122.2	0	0	-0.27	0
Recovery Furnace No. 3	-174.8	-64.8	-441.5	-367.9	-26.3	-1.5
Smelt Dissolving Tank No. 3	-44.2	-1.5	-5.7	0	-2.9	-2.1
Precipitator Mix Tank No. 3	0	0	0	0	-0.38	-0.031
Causticizing Area	-1.8	0	0	0	-11.4	-0.53
Lime Kiln No. 2	-24.1	-25.0	-161.6	-9.6	-1.8	-3.8
Pulp Dryer****	-0.6	0	0	0	-11.1	-0.7
New 68% Black Liquor Storage Tank*	N/A	N/A	N/A	N/A	N/A	N/A
New Woodyard Truck Dumper*	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Baseline Actual Emissions</b>	<b>-245.5</b>	<b>-372.0</b>	<b>-608.8</b>	<b>-602.6</b>	<b>-75.3</b>	<b>-9.4</b>
<b>Additional Reasonably Accommodated Emissions (tpy)</b>						
Kraft Mill Digester Chip Bin	0	-11.0	0	0	-0.66	0
Kraft Mill Digester and Blow Tank	0	-4.4	0	0	-0.26	0
Kraft Mill Turpentine Recovery System	0	-0.11	0	0	-0.00026	0
Kraft Mill Pressure Diffusion Washer	0	-2.7	0	0	-0.096	0
Kraft Mill Knotting and Screening System	0	-6.6	0	0	-0.48	0
Kraft Mill Oxygen Delignification System	0	-0.43	0	-1.7	-0.15	0
Kraft Mill Bleaching System	0	0	0	-29.8	-2.8	-0.092
Evaporator Set No. 1	0	-17.1	0	0	-0.038	0
Recovery Furnace No. 3	-14.5	-5.3	-36.4	-30.2	-2.2	-0.12
Smelt Dissolving Tank No. 3	-3.6	-0.12	-0.48	0	-0.24	-0.18
Precipitator Mix Tank No. 3	0	0	0	0	-0.032	-0.0026
Causticizing Area	-0.20	0	0	0	-1.3	-0.061
Lime Kiln No. 2	-2.7	-2.8	-18.4	-1.1	-0.20	-0.43
Pulp Dryer****	N/A	N/A	N/A	N/A	N/A	N/A
New 68% Black Liquor Storage Tank*	N/A	N/A	N/A	N/A	N/A	N/A
New Woodyard Truck Dumper*	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Reasonably Accommodated Emissions</b>	<b>-21.0</b>	<b>-50.6</b>	<b>-55.3</b>	<b>-62.8</b>	<b>-8.5</b>	<b>-0.9</b>
<b>Projected Actual Emissions (tpy)</b>						
Kraft Mill Digester Chip Bin	0	99.9	0	0	6.1	0
Kraft Mill Digester and Blow Tank	0	40.7	0	0	2.3	0
Kraft Mill Turpentine Recovery System	0	1.0	0	0	0.0023	0
Kraft Mill Pressure Diffusion Washer	0	24.1	0	0	0.88	0
Kraft Mill Knotting and Screening System	0	28.5	0	0	1.0	0
Kraft Mill Oxygen Delignification System	0	3.9	0	14.9	1.3	0
Kraft Mill Bleaching System	0	0	0	267.2	14.9	0.96
Evaporator Set No. 1	0	185.7	0	0	0.41	0
Recovery Furnace No. 3	220.8	81.9	558.5	465.6	33.7	1.8
Smelt Dissolving Tank No. 3	56.1	1.9	7.4	0	3.7	2.7
Precipitator Mix Tank No. 3	0	0	0	0	0.48	0.039
Causticizing Area	2.6	0	0	0	16.6	0.74
Lime Kiln No. 2	34.2	36.4	232.1	14.0	2.5	5.3
Pulp Dryer****	0.9	0	0	0	15.4	1.1
New 68% Black Liquor Storage Tank*	0	0	0	0	0.48	0.83
New Woodyard Truck Dumper*	1.8	0	0	0	0	0
<b>Total Projected Actual Emissions</b>	<b>316.4</b>	<b>504.0</b>	<b>798.0</b>	<b>761.7</b>	<b>99.8</b>	<b>13.5</b>

**Table 4.1 (continued)**  
**New Source Review Applicability**

Emission Unit	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	TRS
<b>Project Summary (tons/yr)</b>						
Total Baseline Actual Emissions	-245.5	-372.0	-608.8	-602.6	-75.3	-9.4
Total Reasonably Accommodated Emissions	-21.0	-50.6	-55.3	-62.8	-8.5	-0.9
Total Projected Actual Emissions	316.4	504.0	798.0	761.7	99.8	13.5
<b>Total for Project</b>	<b>49.9</b>	<b>81.4</b>	<b>133.9</b>	<b>96.3</b>	<b>16.0</b>	<b>3.2</b>
<b>NSR THRESHOLD</b>	<b>15</b>	<b>40</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>10</b>
<b>IS INCREASE SIGNIFICANT?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>NO<sub>x</sub> EMISSION OFFSET REQUIRED (1:1.15)</b>			<b>154.0</b>			
<b>Five-Year Contemporaneous Emissions (tons/yr)</b>						
TMP Bleaching System (CY)	5.7	38.2	15.1	32.5	11.5	0
No. 3 Recovery Furnace (CX)	12.7	14.9	22.3	8	0.9	1.3
Wet End Starch System (CW)	3.6	12	5.8	33	0.77	0
WWTP Holding Basin Pump #1 (CV)	2.5	2.3	35.3	7.6	2.9	0
WWTP Holding Basin Pump #2 (CU)	3.3	3.1	22.7	10.1	3.8	0
TTP Pump A*** (CU)	1.9	1.8	13.1	5.9	2.2	0
ASB Pump A*** (CU)	1.9	1.8	13.1	5.9	2.2	0
New Fiberline & PM3 Conversion (CO, CP, CQ, CR, CS, CT)	N/A**	-217	N/A**	-589	7	-40
LVHC System and Condensate Stripper (CN)	N/A**	196	N/A**	201	-404	2
Air Make-up Units (CM)	N/A**	0	N/A**	27	2	0
Paper Mill Improvement Project (CL)	N/A**	0	N/A**	0	7	0
Condensate Collection Tank (CK)	N/A**	0	N/A**	0	0	0
<b>Total Contemporaneous</b>	<b>31.6</b>	<b>53.1</b>	<b>127.3</b>	<b>-258.0</b>	<b>-363.8</b>	<b>-36.7</b>
<b>Project Summary (tons/yr)</b>						
Total for Project	49.9	81.4	133.9	96.3	16.0	3.2
Total Contemporaneous	31.6	53.1	127.3	-258.0	-363.8	-36.7
<b>Project + Contemporaneous</b>	<b>81.5</b>	<b>134.5</b>	<b>261.2</b>	<b>-161.7</b>	<b>-347.8</b>	<b>-33.5</b>
<b>NSR THRESHOLD</b>	<b>15</b>	<b>40</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>10</b>
<b>IS INCREASE SIGNIFICANT?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>

\* New source, potential emissions used for project actual emissions.

\*\* Included in PSD permits issued in October 2003, emissions no longer creditable.

\*\*\* TTP pump B and ASB pump B removed, emissions from pump A only.

\*\*\*\* Debottlenecked source, potential emissions used for projected actual emissions.

**Attachment 4**  
**Steam Balance**

### **Steam Balance**

Recovery Furnace steam generation = 12,000 lb/ton

Fiberline steam usage = 5,000 lb/ton

Evaporator steam usage (after modification) = 3,200 lb/ton (currently 3,600 lb/ton)

Pulp dryer steam usage = 3,000 lb/ton

Steam balance =  $12,000 - 5,000 - 3,200 - 3,000 = 800$  lb/ton

The recovery furnace will generate approximately 800 lb/ton more steam than required to manufacture and dry the additional kraft pulp.